REMARKS

Status Summary

In this Amendment, no claims are added and no claims are canceled. Therefore, upon entry of this Amendment, claims 22-39 will remain pending.

Claim Objections

In paragraph 3, the Office Action states:

> Claim 34 is objected to because of the following informalities: regarding claim 34, the phrase 'subsecond switchover' makes the claim indefinite since it appears that the phrase 'subsecond switchover' would be 'subsequent switchover'. Appropriate correction is required.

Applicant respectfully draws Examiner's attention to the Specification, starting from page 17, line 18 and continuing through page 19, line 20. This section of the Specification, entitled "Subsecond Switchover", describes a claimed feature of the invention: the ability to quickly recover from a failure of a call manager by operation of second call manager performing a change from standby to active mode. Therefore, Applicant respectfully submits that no correction is required, and requests that the objection to claim 34 be withdrawn.

Claim Rejections 35 U.S.C. § 103

As a preliminary matter, it is pointed out that minor amendments have been incorporated into claim 22 to improve its form without adding any new matter. Support for this amendment can be found in Figures 2, 3, and 6; on page 7, lines 9-10; and on page 20, lines 21-23 in the Specification.

I

Claims 22, 24-27, 29-32, 34 and 36-39 stand rejected under 35 U.S.C. § 103(a) as unpatentable over U.S. Patent No. 6,993,011 to Kaplan et al. (hereinafter, "Kaplan") in view of U.S. Patent No. 6,570,855 to Kung et al. (hereinafter, "Kung"). This rejection is respectfully traversed.

Independent claims 22 and 29, respectively recite a scalable call processing node and a method for call server module switchover in a scalable call processing node in response to a call server failure. In particular, in claim 22, a scalable call processing node includes a link interface module (LIM) and first and second call server modules. The link interface module identifies signaling system 7 (SS7) call signaling messages relating to the establishment of a call as requiring processing by a call server and selects a call server for processing the messages. The first call server module functions as a primary call server that stores connection status and call state information regarding calls in progress in the media gateway and performs media gateway call management functions for establishing the call in the media gateway. The second call server stores connection status and call state information regarding calls in progress through the media gateway and functions as a backup call server. The second call server switches operation to become the primary call server in response to detection of failure of the first call server. Examples of the call state and the connection status information regarding calls in progress in the media gateway that is stored in the backup call server includes the call state information illustrated in state table **705** and the connection status information illustrated in endpoint table **703**. Because such information is stored on both the primary and secondary call servers, sub-second

switchover (i.e., switchover to the backup call server in less than a second) can occur when the primary call server fails.

Independent claims 22 and 29 have each been amended to recite that the link interface module interfaces with SS7 signaling links and performs call server selection based on a parameter in a received signaling message and that the call servers are separate from the link interface modules. Providing separation between the link interface and call server functions is believed to provide increased reliability. Selecting a call server at the link interface module using a parameter in the signaling message ensures that messages are sent to the proper call server.

There is absolutely no teaching or suggestion in Kaplan or Kung of a scalable call processing node or a method where a link interface module separate from a call server module selects a call server for a received signaling message based on a parameter in the received signaling message. In paragraph 5, the Office Action states:

> Regarding claims 22,32,36, with respect to Figures 1,2,4, **Kaplan** teaches a session manager [i.e., link interface module (LIM)] (fig.4, item **442**) receiving SS7 call signaling messages and identifying an SS7 call signaling message relating to establishment of a call as requiring processing by a call manager server [i.e., call server] (fig.4, item **445**) and selecting a call server for processing the SS7 call signaling message (col.15, lines 48-57).

From this passage, the Office Action indicates that Kaplan teaches a session manager **442** that receives SS7 call signaling messages. However, nowhere does Kaplan teach that the session manager receives SS7 call signaling messages. On the contrary, Kaplan, which discloses a residential hub that provides communications services to an end-user (See Kaplan Abstract), teaches that the *call manager* (fig.4, item **445**) receives and processes SS7 call signaling messages:

> Call manager **445** provides a call processor and SS7 signaling interface between POTS network **460** and session manager **442** (through ATM switch **441**).

(Kaplan, column 7, lines 30-32.) Nowhere does Kaplan disclose a session manager receiving SS7 call signaling messages and identifying an SS7 call signaling message relating to establishment of a call as requiring processing by a call manager server and selecting a call server for processing the SS7 call signaling message.

Even considering the function of call manager **445** in Kaplan, Kaplan does not teach or suggest receiving SS7 call signaling messages and identifying an SS7 call signaling message relating to establishment of a call as requiring processing by a call manager server and selecting a call server for processing the SS7 call signaling message. In Kaplan, call manager **445** receives SS7 call signaling messages (Kaplan, column 7, lines 30-31) and processes those messages (Kaplan, column 8, line 65 – column 9, line 6). Because both functions are performed by call manager **445**, no call server selection is performed or even required. Moreover, call manager **445** of Kaplan cannot anticipate or render obvious the link interface module and call servers as claimed because call manager **445** is not separate from a link interface module.

Kung likewise does not teach or suggest receiving SS7 call signaling messages at a link interface module separate from the call servers or selecting a call server for processing the SS7 call signaling message using a parameter in the SS7 call signaling message. Kung discloses a method for ameliorating call traffic load by redirecting some call traffic to a second call server when the first call server has exceeded some predetermined load level. (See Kung Abstract.) Although Kung discloses a signaling gateway **234** that receives SS7 signaling messages and communicates with a call

manager **218** (Kung, column 14, lines 19-24), nowhere does Kung disclose selection of a call server by the signaling gateway. On the contrary, the selection of first or second call server is performed by the call manager rather than by the signaling gateway. (Kung, column 30, lines 49-53.) Thus, Kung also does not disclose an entity receiving SS7 call signaling messages and identifying an SS7 call signaling message relating to establishment of a call as requiring processing by a call manager server and selecting, using a parameter in the SS7 call signaling message, a call server for processing the SS7 call signaling message.

In summary, there is no teaching or suggestion in either Kaplan or Kung of a link interface module interfacing with SS7 signaling links, receiving SS7 call signaling messages, identifying, based on a parameter in the SS7 call signaling message, an SS7 call signaling message relating to establishment of a call as requiring processing by a call manager server, and selecting a call server separate from the link interface module for processing the SS7 call signaling message.

Moreover, increased reliability may result because of the separation of the LIM functions (SS7 signaling) and CSM functions (call server processing) in claims 22 and 29. As described in the Specification starting from page 17, line 4, call server module **202** preferably includes its own power supply **403**. Thus, if one power supply fails, only one call server module will fail. Specifically, a failure of a call server module does not affect the ability of the rest of the system to receive and process SS7 signals or to forward the SS7 signals to the next signal transfer point. This increases the reliability of the present invention.

In contrast, Kaplan teaches a single entity, call manager **445**, which handles both

SS7 signaling and call server processing. A failure of call manager **445** would affect not only Kaplan's ability manage connections but also its ability to appropriately forward SS7 signal messages to other signaling nodes.

As described in the Applicant's specification, starting on page 17, line 18 and continuing through page 19, line 20, includes a second call server, which may act as a backup server, taking over the functions of the primary server should the primary server fail. (Specification, page 17, lines 19-21 and claims 22 and 29.) Both the primary and secondary server maintain connection and status information of calls in progress. Specifically, the secondary server maintains this information at all times, *even when the server is in standby state*. (Specification, page 18, lines 12-13.)

In paragraph 5, the Office Action states:

> However, **Kaplan** does not specifically teach the first call server module and second call server module storing connection status and call state information regarding calls in progress in a media gateway and performing media gateway call management functions for establishing the call in the media gateway. **Kung** teaches the first call server module and second call server module storing connection status and call state information regarding calls in progress in a signaling gateway [i.e., media gateway] and performing media gateway call management functions for establishing the call in the media gateway (fig.5,6,9-11; col.7, lines 7-15, col.26, lines 55-67, col.27, lines 1-2,8-11,31-49, col.30, lines 49-67, col.31, lines 1-17). Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify **Kaplan** to incorporate the first call server module and second call server module storing connection status and call state information regarding calls in progress in a media gateway and performing media gateway call management functions for establishing the call in the media gateway in order to use a second call manager as a backup as well as set up a connection with a media gateway to route a particular call.

From this passage, the Office Action indicates that Kung teaches a second call server module storing connection status and call state information regarding calls in progress through the media gateway and functions as a backup call server, where the second

call server switches operation to become the primary call server in response to failure of the first call server. However, Kung does not contain any teaching whatsoever that the second call server stores connection status and call state information regarding calls in progress, even when the second call server is in standby state. On the contrary, Kung teaches that the second call server becomes active only when the first call server's load exceeds a predetermined load level (Kung, column 31, lines 3-4) and even then, the second call server only processes *future* calls or *pending* calls – i.e., calls that have not been connected yet (Kung, column 31, lines 18-30). Indeed, as the Office Action points out in paragraph 5, page 5, Kung teaches that switching occurs without transfer of the call state information, which is an unsurprising feat considering that in Kung, the second server makes no attempt to take over *existing* calls, but only begins processing *pending and future* calls – i.e., calls for which there is no connection information yet, and thus no information that need be transferred to the second server. In other words, Kung includes no teaching, motivation, or suggestion of a second server that maintains connection and status information of calls currently in progress while the second server is in standby state. In summary, there is no teaching or suggestion in either Kaplan or Kung of a second server that maintains connection and status information of calls currently in progress.

Therefore, because Kaplan and Kung do not teach or suggest the claimed invention, it is respectfully submitted that the rejection of claims 22 and 29 and their respective dependent claims should be withdrawn.

II

Claims 22-27, 29-34 and 36-39 stand rejected under 35 U.S.C. § 103(a) as unpatentable over U.S. Patent No. 6,205,557 to Chong et al. (hereinafter, "Chong") in view of U.S. Patent No. 6,570,855 to Kung et al. (hereinafter, "Kung"). This rejection is respectfully traversed.

As described in the Applicant's specification, link interface modules **201** internally route SS7 signaling messages, *including call server selection* (emphasis added), based on one or more parameters in the SS7 signaling messages. (Specification, page 7, lines 14-20.) Exemplary parameters that may be used to perform call server selection are the origination point code (OPC), destination point code (DPC), and circuit identification code (CIC). (Specification, page 20, lines 21-23.) As described above, claims 22 and 29 have been amended to recite that the link interface modules interface with SS7 signaling links and perform call server selection based on one or more parameters in the SS7 signaling messages.

There is no disclosure, teaching, or suggestion in Chong of a link interface module that interfaces with SS7 signaling links and performs call server selection based on one or more parameters in the SS7 signaling messages. For example, paragraph 6 of the Office Action states:

> Regarding claims 22,32,36, **Chong** teaches an interface server [i.e., link interface module (LIM)] for receiving signaling message [i.e., SS7 call signaling message] and for identifying signaling message [i.e., at least one parameter in the SS7 message] relating to establishment of a call as requiring processing by a call server and for selecting a call server for processing the signaling message (fig.3; col.6, lines 11-44).

However, Chong does not teach selecting a call server based on one or more parameters in the SS7 signaling messages. Chong, column 6, lines 11-44 describe the

flowchart in Chong Figure 7, which illustrates a process that includes reception of a SS7 signaling message and subsequent selection of a call server. In particular, step **S102** describes the call server selection step. Step **S102** is described in its entirety in Chong, column 6, lines 15-16, which states "In step **S102**, the interface server **120** selects an active call server **140**." Chong makes no teaching or suggestion whatsoever of a call server selection process based on a parameter in the SS7 signaling messages. On the contrary, Chong recites only a call server selection based on the state of the call server (active or passive) rather than on the contents of the message. Nor does Kung teach or suggest selecting a call server based on one or more parameters in the SS7 signaling message. Rather, Kung recites selection of a call server, *by the active call server*, based only on the load of the active call server. (Kung, column 30, lines 49-54.) Thus, there is no teaching or suggestion in either Chong or Kung of a signaling interface selecting a call server based on one or more parameters in the SS7 signaling messages.

Therefore, because Chong and Kung do not teach or suggest the claimed invention, it is respectfully submitted that the rejection of claims 22 and 29 and their respective dependent claims should be withdrawn.

III

Claims 23 and 33 stand rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,993,011 to Kaplan et al. (hereinafter, "Kaplan") in view of U.S. Patent No. 6,570,855 to Kung et al. (hereinafter, "Kung") further in view of U.S. Patent No. 6,205,557 to Chong et al. (hereinafter, "Chong"). This rejection is respectfully traversed.

Claim 23 depends from claim 22, and claim 33 depends from claim 29. As stated above, Kaplan, Kung, and Chong fail to teach or suggest a method or a call processing node where a link interface module interfaces with SS7 signaling links and selects a separate call server using a parameter in a received SS7 signaling message. Accordingly, for the same reasons stated above with regard to claims 22 and 29, it is respectfully submitted that the rejection of claims 23 and 33 as unpatentable over Kaplan in view of Kung and further in view of Chong should be withdrawn.

Moreover, paragraph 7 of the Office Action admits that neither Kaplan nor Kung teach switching from backup to primary call server module occurs in less than one second, and goes on to state:

> **Chong** teaches that the switching from backup to active call server [i.e., primary call server module] occurs in less than one second (abstract; fig.3, fig.5; col.4, lines 10-65).

However, nowhere does Chong disclose that the time to switch from backup to active call server (hereinafter, "switchover time") is less than one second. Chong, column 4, lines 10-65 state:

> If a fault occurs in the active call server **140** between the time that the initial signaling message is received and a response is returned to the switch **101**, the call connection may fail. However, in the case of a simple call, the waiting time between receipt of the initial signaling message and sending a response is very short, and thus a failure is not likely.

In other words, Chong explicitly warns that switchover will not be fast enough to take place between the time the initial signaling message is received and the response is returned, but tries to downplay this potential problem by stating, in effect, "but this probably won't happen." Furthermore, nowhere in the remainder of the section cited by the Office Action (column 4, lines 10-65) does Chong mention switchover time. Column

4, lines 17-27 describe the process of updating call status during a complex call connection. Lines 28-52 describe the process of maintaining information in the primary and standby call servers. Lines 53-65 state that a call server may take only 100 milliseconds to *process a call*, while the time between processing calls may be on the order of seconds to minutes. In other words, column 4, lines 17-65 do not mention switchover time at all. The abstract describes switchover as "rapid", but nowhere in Chong is the term "rapid" defined as meaning "subsecond". Nor does Chong contain a suggestion of a subsecond switchover. On the contrary, Chong states that the time between processing calls may be on the order of seconds to minutes, and warns that switchover will not be fast enough to occur between receipt of an initial signaling message and sending the response. In other words, Chong suggests that the switchover will *not* be "subsecond". In summary, neither Kaplan, Kung, or Chong teach or suggest a subsecond switchover.

Therefore, since Kaplan, Kung, and Chong do not teach or suggest the claimed invention, it is respectfully submitted that the rejection of claims 23 and 33 should be withdrawn.

IV

Claim 28 is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,205,557 to Chong et al. (hereinafter, "Chong") in view of U.S. Patent No. 6,490,451 to Denman et al. (hereinafter "Denman") further in view of U.S. Patent Publication 2002/0057782 to Haruta (hereinafter, "Haruta"). This rejection is respectfully traversed.

Claim 28 depends from claim 22. As stated above, Chong does not teach selecting a call server based on one or more parameters in the SS7 signaling messages, nor does Chong teach a subsecond switchover time. Denman and Haruta likewise lack such teaching or suggestion. Denman is directed to replacing a circuit switched network of MSC/VLRs with a packet-switched core network. Haruta is directed to call center and is not even related to media gateway management. There is no teaching or suggestion in either Denman or Haruta of selecting a call server based on one or more parameters in the SS7 signaling messages.

Therefore, since Chong, Denman, and Haruta do not teach or suggest the claimed invention, it is respectfully submitted that the rejection of claim 28 should be withdrawn.

V

Claim 35 is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,993,011 to Kaplan et al. (hereinafter, "Kaplan") in view of U.S. Patent No. 6,570,855 to Kung et al. (hereinafter, "Kung") further in view of U.S. Patent No. 6,490,451 to Denman et al. (hereinafter "Denman"). This rejection is respectfully traversed.

Claim 35 depends from claim 22. As stated above, there is no teaching or suggestion in either Kaplan or Kung of a second call server that maintains connection and status information of calls currently in progress. Denman likewise lacks such teaching or suggestion. On the contrary, in Denman, connection information is maintained not by call server **414** but instead by a separate entities, PSTN trunking media gateway **418** and wireless mobility server **416**. (Denman, figure 4 and column 10,

lines 10-17.) Therefore, since Kaplan, Kung, and Denman do not teach or suggest the claimed invention, it is respectfully submitted that the rejection of claim 35 should be withdrawn.

VI

Claim 35 is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,205,557 to Chong et al. (hereinafter, "Chong") in view of U.S. Patent No. 6,570,855 to Kung et al. (hereinafter, "Kung") further in view of U.S. Patent No. 6,490,451 to Denman et al. (hereinafter "Denman"). This rejection is respectfully traversed.

Claim 35 depends from claim 22. As stated above, there is no teaching or suggestion in either Chong, Kung, or Denman of a signaling interface selecting a call server based on one or more parameters in the SS7 signaling messages. Therefore, since Chong, Kung, and Denman do not teach or suggest the claimed invention, it is respectfully submitted that the rejection of claim 35 should be withdrawn.

CONCLUSION

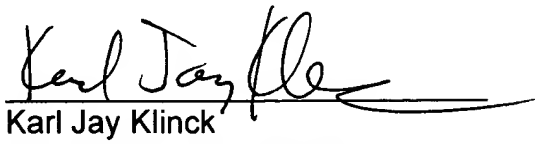
If any small matter should remain outstanding after the Patent Examiner has had an opportunity to review the above Remarks, the Patent Examiner is respectfully requested to telephone the undersigned patent attorney in order to resolve these matters and avoid the issuance of another Official Action.

The Commissioner is hereby authorized to charge any fees associated with the filing of this correspondence to Deposit Account No. **50-0426**.

Respectfully submitted,

JENKINS, WILSON, TAYLOR, & HUNT, P.A.

Date: January 16, 2007

By: 

Karl Jay Klinck
Registration No. 58,369

Customer No.: 25297

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Enclosure